

# A-Level Learning Plan 2024-25

## Course Plan: A Level Mathematics Year 1



An outline of the course and other key dates can be found on the following pages. See the individual 'Topic Plans' for more detail on the learning content.

### **Commitment to equality of opportunity, British values and skills for next steps:**

In planning this course, we commit to developing resources and teaching strategies that reflect and value the diversity of learners' experiences. Where opportunities arise, we will provide learners with a comprehensive understanding of people and communities beyond their immediate experience. We will promote open, honest and relevant debate around the values of democracy, individual liberty, the law and mutual respect wherever possible. Where appropriate we will embed English, mathematics, ICT and employability skills to ensure that learners are well-equipped with the necessary skills to progress to their next steps.

| Week commencing | Key topic | Assessment Schedule | Events |
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| 2 <sup>nd</sup> September  | <b>1. Baseline test</b>   |  |  |
| 9 <sup>th</sup> September  | 1. Surds & indices<br>2. Quadratic functions & discriminant<br>3. Simultaneous equations & consolidation                                  | <a href="#">Quadratics by TLMaths</a><br><a href="#">Discriminant</a><br><a href="#">Simultaneous equations by TLMaths</a><br>Homework 1: Index laws, surds, quadratics & sim eqns   | <a href="#">Sexual Health Week</a>   |
| 16 <sup>th</sup> September | 1. Straight line coordinate geometry<br>2. Circle coordinate geometry<br>3. Coordinate geometry consolidation                             | <a href="#">Coordinate geometry by TLMaths</a><br><a href="#">Circles by TLMaths</a>   |  |
| 23 <sup>th</sup> September | 1. Inequalities & mathematical notation<br>2. Proof methods<br><b>3. Assessment 1</b>   | <a href="#">Inequalities, notations etc by TLMaths</a><br><a href="#">Introducing Consequence and Equivalence by TLMaths</a><br><a href="#">Methods of Proof by MathsExplained</a><br>Homework 2: Coordinate geometry & sim eqns | 26 <sup>th</sup> - <a href="#">European Day of Languages</a><br>26 <sup>th</sup> - <a href="#">World Contraception Day</a> |
| 30 <sup>th</sup> September | 1. Differentiation from first principles<br>2. Differentiating $x^n$<br>3. Increasing/decreasing functions & sketching gradient functions | <a href="#">Differentiation from first principle by TLMaths.</a><br><a href="#">Differentiation notation by Cole's</a><br><a href="#">Increasing decreasing function by TLMaths</a>  | <a href="#">Black History month (October)</a><br><a href="#">Breast Cancer Awareness month</a>                             |
| 7 <sup>th</sup> October    | 1. Tangents & normals<br>2. Stationary points<br>3. Optimisation  | Assessments for PR1/5<br><a href="#">Differentiation : Tangents and Normals by ExamSolutions</a><br><a href="#">Stationary points and their types by TLMaths</a>   | 10 <sup>th</sup> - <a href="#">World Mental Health Day</a>   |

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|   |  | <a href="#">Graphs of Gradient Functions by TLMaths</a><br><a href="#">Optimisation: Maximise volume by TLMaths</a><br><a href="#">Optimisation: Minimise surface area by TLMaths</a><br>Homework 7: Proof, quadratics  |  |
| 14 <sup>th</sup> October  | <b>1. Assessment 2</b><br>2. Integrating expressions<br>3.   | <a href="#">Basic integration by ExamSolutions</a>  | 19 <sup>th</sup> - <a href="#">International Men's Day</a><br>20 <sup>th</sup> - non-teaching day (CPD)                    |
| 21 <sup>st</sup> October  | 1. Definite integration and areas<br>2. Areas between curves<br>3. Calculus consolidation                    | <a href="#">Definite integrals and area under a line by TLMaths</a><br><a href="#">Area between two curves by TLMaths</a><br>Homework 3: Differentiation  |  |
| <b>Half term - 28<sup>th</sup> October to 1<sup>st</sup> November</b> |  |   |  |
| 4 <sup>th</sup> November  | 1. Polynomials & algebraic division<br>2. The factor theorem<br>3. Sketching cubics & reciprocals            | 8 <sup>th</sup> Nov. PR1/5 deadline<br><a href="#">Long division by Corbettmaths</a><br><a href="#">Factor Theorem by Corbettmaths</a><br><a href="#">Sketching cubics by ExamSolutions</a><br><a href="#">Reciprocal functions by Textbook Tactics</a><br><a href="#">Sketching reciprocals of Quadratics by Room244</a> | November<br>3 <sup>rd</sup> Nov - <a href="#">Job action day</a>   |
| 11 <sup>th</sup> November   | 1. Sketching and describing transformations<br>2. Trig – sine & cosine rule<br>3. Trig graphs & exact values | <a href="#">Sine &amp; Cosine rules by Maths Genie</a><br><a href="#">Trig graphs by TLMaths</a>  | 11 <sup>th</sup> - <a href="#">Armistice Day</a><br><a href="#">Anti-Bullying Week</a><br><a href="#">Inter-Faith Week</a> |

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| 18 <sup>th</sup> November | <ol style="list-style-type: none"> <li>1. Trig identities</li> <li>2. Trig equations</li> <li>3. Trig consolidation</li> </ol>  | <a href="#">Trig identities to simplify exp by TLMaths</a><br><a href="#">Solving basic trig functions by TLMaths</a><br><a href="#">Solve <math>4\sin(x) + 5\cos(x) = 0</math> by TLMaths</a><br><a href="#">Solve <math>\sin^2(x) + 2\sin(x) - 3 = 0</math> by TLMaths</a><br><a href="#">Solve <math>\sin(3x-0.8) = 0.25</math> by TLMaths</a><br>Homework 4: Trigonometry |  |
| 25 <sup>th</sup> November | <ol style="list-style-type: none"> <li>1. <b>Assessment 3</b></li> <li>2. Introducing logs &amp; laws of logs</li> <li>3. Solving equations using logs &amp; log equations</li> </ol> | <a href="#">Laws of Logarithms by TLMaths</a><br><a href="#">Solving log equations by TLMaths</a>   | 1 <sup>st</sup> Dec - <a href="#">World Aids Day</a>                                 |
| 2 <sup>nd</sup> December  | <ol style="list-style-type: none"> <li>1. The exponential function &amp; natural log</li> <li>2. The derivative of <math>e^x</math></li> <li>3. Exponential modelling</li> </ol>      | <a href="#">Gradient of exponential equations by TLMaths</a><br><a href="#">Exponential Function e and ln by MathsGenie</a><br><a href="#">Solving exponential question by TLMaths</a><br><a href="#">Exponential modelling by AJMaths</a><br>Homework 5: Logs & exponentials   | 3 <sup>rd</sup> Dec - <a href="#">International Day of Persons with Disabilities</a> |
| 9 <sup>th</sup> December  | <ol style="list-style-type: none"> <li>1. Curve fitting - polynomials</li> <li>2. Curve fitting - exponentials</li> <li>3. Mock revision</li> </ol>                                   | <a href="#">Reduction to Linear Form by TLMaths</a>   | 10 <sup>th</sup> - <a href="#">Human Rights Day</a>                                  |
| 16 <sup>th</sup> December | 16 <sup>th</sup> to 19 <sup>th</sup> - Autumn Term Mock Week (no U6 teaching, L6 assessment in lessons)   | Christmas homework: Sampling  | 20 <sup>th</sup> - non-teaching day (CPD)  |

**Christmas Break - 23<sup>rd</sup> December to 3<sup>rd</sup> January**

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| 6 <sup>th</sup> January  | <ol style="list-style-type: none"> <li>1. Binomial expansion</li> <li>2. Binomial coefficients</li> <li>3. Binomial and estimating</li> </ol>   | <a href="#">Binomial expansion by 1st Class Maths</a><br><br><a href="#">Binomial - specific term by Mario's Math</a><br><br><a href="#">Binomials - Estimating by TLMaths</a><br><br>Homework 6: Polynomials |   |
| 13 <sup>th</sup> January | <ol style="list-style-type: none"> <li>1. Large data set &amp; exam questions</li> <li>2. Sampling</li> <li>3. Measures of central tendency &amp; dispersion</li> </ol>   | Additional assessments for PR2/6<br><br><a href="#">LDS by TLMaths</a><br><br><a href="#">Sampling by AJMaths</a><br><br><a href="#">Central tendency by AJMaths</a>  | 19 <sup>th</sup> - <a href="#">World Religion Day</a>   |
| 20 <sup>th</sup> January | <ol style="list-style-type: none"> <li>1. Comparisons and outliers</li> <li>2. Single variable data</li> <li>3. Bivariate data</li> </ol>   | <a href="#">Outliers: Using the Quartiles and IQR by TLMaths</a><br><br><a href="#">Correlation &amp; Causation by TLMaths</a><br><br>Homework 8: Statistical measures & diagrams                             |   |
| 27 <sup>th</sup> January | <ol style="list-style-type: none"> <li>1. <b>Assessment 5</b></li> <li>2. Venn diagrams and two-way tables</li> <li>3. Addition law &amp; mutually exclusive events</li> </ol>  | Start past paper revision<br><br><a href="#">Addition Rule of probability by Jeremy</a><br><br><a href="#">Probability: Independent or Mutually Exclusive by TLMaths</a>                                      | 27 <sup>th</sup> - <a href="#">Holocaust Memorial Day</a><br><a href="#">LGBT+ History Month (February)</a> |
| 3 <sup>rd</sup> February | <ol style="list-style-type: none"> <li>1. Tree diagrams, dependent &amp; independent events</li> <li>2. Probability distributions - DRV's</li> <li>3. Binomial distribution - conditions &amp; finding probabilities</li> </ol> | 3 <sup>rd</sup> Feb PR2/6 deadline<br><br><a href="#">Tree Diagrams and Independent Events by ExamSolutions</a>   | 4 <sup>th</sup> - <a href="#">World Cancer Day</a>  |

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|  |   | <a href="#">Probability Distribution by BicenMaths</a><br><a href="#">Binomial Distribution by Ace Tutors</a><br><a href="#">Binomial Distribution: Finding Probabilities by TLMaths</a><br>Homework 9: Probability  |  |
| 10 <sup>th</sup> February                                      | 1. Binomial distribution - using the formula<br>2. Spare<br>3. Spare  |  | 12 <sup>th</sup> - parents evening<br>20 <sup>th</sup> - <a href="#">World Day of Social Justice</a> |
| <b>Half Term - 17<sup>th</sup> to 21<sup>st</sup> February</b> |   |  |  |
| 24 <sup>th</sup> February                                      | 1. Hypothesis testing - setting up a test & one-tailed<br>2. Hypothesis testing - two tailed<br>3. Hypothesis testing - critical region | <a href="#">Hypothesis Testing: An Introduction by TLMaths</a><br><a href="#">Significance Level by TLMaths</a><br><a href="#">One-Tail or Two-Tail Test? by TLMaths</a><br><a href="#">Critical &amp; Acceptance Regions by TLMaths</a><br>Homework 10: Binomial & hypothesis testing |  |
| 3 <sup>rd</sup> March  | 1. Mock revision/catch up<br>2. Mock revision/catch up<br>3. Mock revision/catch up   |  | 8 <sup>th</sup> - <a href="#">International Women's Day</a><br><a href="#">National Careers week</a> |
| 10 <sup>th</sup> March   | Spring Term Mock Week (no teaching for L6 and U6)   | Homework: Mechanics prep - units & dimensions  |  |
| 17 <sup>th</sup> March   | 1. Vectors - definitions and properties<br>2. Vectors - components (magnitude   | <a href="#">Unit vectors by TLMaths</a><br><a href="#">Vectors: Magnitude and Direction by</a>   | 20 <sup>th</sup> - <a href="#">International Day of Happiness</a>                                    |

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|  | & direction)<br>3. Vectors - modelling  | <a href="#">SnapRevise</a><br><a href="#">Vectors Problem-1 by TLMaths</a><br><a href="#">Vectors: Forces in Equilibrium Problem by TLMaths</a><br><a href="#">Vectors: Kinematics Problem by TLMaths</a>   |  |
| 24 <sup>th</sup> March   | 1. Mock feedback<br>2. Motion graphs<br>3. Constant acceleration  | <a href="#">Displacement / Time Graphs by TLMaths</a><br><a href="#">Kinematics: Velocity / Time Graphs by TLMaths</a><br><a href="#">Deriving the Constant Acceleration Formulae by TLMaths</a><br><a href="#">Constant Acceleration Exam Questions by Kiran</a><br>Homework 11: Vectors |  |
| 31 <sup>st</sup> March   | 1. Variable acceleration<br>2. Consolidation<br>3. Spare lesson   | <a href="#">Variable acceleration question in 1D by AJMaths</a><br><a href="#">Calculus in Kinematics: 2D by TLMaths</a><br>Homework 12: Motion graphs & kinematics   | <a href="#">Autism Awareness Week</a>  |
| <b>Easter Holiday - 7<sup>th</sup> to 21st April (including Bank Holidays)</b> |   |   |  |
| 21 <sup>st</sup> April   | 21 <sup>st</sup> - Bank Holiday Monday<br>1. Forces & equilibrium (1D and 2D)<br>2. Forces & acceleration (1D and 2D) | 22 <sup>nd</sup> - PR3/7 deadline<br><a href="#">Resolving Forces in Equilibrium by TLMaths</a><br><a href="#">Resolving method for 3 or more forces by ExamSolutions</a><br><a href="#">F=ma Example by TLMaths</a>  | 23 <sup>rd</sup> - HE/Careers Day (TBC)<br>23 <sup>rd</sup> - <a href="#">World Book Day</a> |

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|                        |  | <a href="#">F=ma with SUVAT vectors by TLMaths</a>   |  |
| 28 <sup>th</sup> April | 1. Motion under gravity<br>2. Connected particles<br>3. Pulleys  | <a href="#">Vertical Motion Under Gravity by Bicen Maths</a><br><a href="#">Connected Particles by Maths Genie</a><br><a href="#">Pulley example with suvat by TLMaths</a><br>Homework 13: Kinematics & connected particles  | 30 <sup>th</sup> – Parents' Evening (At Risk)<br>3 <sup>rd</sup> May <a href="#">World Press Freedom Day</a> |
| 5 <sup>th</sup> May    | 5 <sup>th</sup> – Bank Holiday Monday<br>1. Mechanics consolidation<br><b>2. Assessment 7</b>                                  |  |  |
| 12 <sup>th</sup> May   | 1. Conditional probability<br>2. Normal distribution – features/finding probabilities<br>3. Standard normal – finding unknowns | <a href="#">Introducing Conditional Probability by TLMaths</a><br><a href="#">Conditional Probability Formulae by TLMaths</a><br><a href="#">Independent events by TLMaths</a><br><a href="#">Normal Distribution: Introduction by TLMaths</a><br><a href="#">Standard Normal Distribution by TLMaths</a><br><a href="#">Normal Distribution: Finding Probabilities by TLMaths</a><br><a href="#">Inverse Normal by TLMaths</a><br><a href="#">Normal to Binomial Problem by TLMaths</a><br>Homework 14: Connected particles - pulleys | <a href="#">Mental Health Awareness week</a>   |
| 19 <sup>th</sup> May   | 1. Hypothesis testing a normal distribution 1<br>2. Hypothesis testing a normal distribution 2<br>3. Testing for correlation   | <i>Note: Add starter questions for using normal probability in a binomial distribution</i><br><a href="#">Mean of Normal Distribution Hypothesis Testing by Maths Genie</a>  |  |



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|   |  | <a href="#">Hypothesis Testing: PMCC Introduction by TLMaths</a><br><a href="#">Hypothesis Testing: PMCC Example by TLMaths</a>  |  |
| <b>Half term - 26<sup>th</sup> May to 30<sup>th</sup> May</b> |  |  |  |
| 2 <sup>nd</sup> June  | 1. Sequences - recurrence, convergence & limits<br>2. Sequences - arithmetic<br>3. Sequences - geometric | <a href="#">Recurrence relations by Zeeshan</a><br><a href="#">Limit of a sequence by TLMaths</a><br><a href="#">Arithmetic sequence by Bicen Maths</a><br><a href="#">Arithmetic series by Bicen Maths</a><br><a href="#">Geometric Sequences: Finding the nth term by TLMaths</a><br><a href="#">Sum to infinity problem by TLMaths</a><br><a href="#">A Geometric Sequence Problem by TLMaths</a> |  |
| 9 <sup>th</sup> June  | 1. Sequences consolidation<br>2. Binomial expansion 1<br>3. Partial fractions                            | <a href="#">Writing in the form <math>p(1 + qx)^n</math> by TLMaths</a><br><a href="#">First four terms of <math>(1 + 2x)^{-2}</math> by TLMaths</a><br><a href="#">Range of validity by TLMaths</a><br><a href="#">Partial fractions by SnapRevise</a>  |  |
| 16 <sup>th</sup> June   | 1. Binomial expansion 2<br>2. Mock revision<br>3. Mock revision  |  | 20 <sup>th</sup> - <a href="#">World Refugee Day</a> |
| 23 <sup>rd</sup> June   | Summer Term Mock Week (no teaching)  |  |  |
| 30 <sup>th</sup> June   | 1. Spare/mock feedback   | 11 <sup>th</sup> July PR4 deadline   | 4 <sup>th</sup> July - last day of                   |

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|  | 2. Spare/mock feedback<br>3. Spare/mock feedback |  | teaching |
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